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## A note on confirmation

Theo A. F. Kuipers

In his article "Some proposals for the solution of the Carnap-Popper discussion on 'inductive logic'", this journal, vol. 6 (1968), pp. 5-25, Batens distinguishes, in section 4, two explicanda of the intuitive concept 'confirmation'. The first,  $\text{conf}_1$ , is concerned with degrees of certainty, the second,  $\text{conf}_2$ , with the degree to which a hypothesis is confirmed by facts.

Batens divides the possible explicata of  $\text{conf}_2$  into two sorts of functions. TCb-functions are such that only confirmation-aspects are judged, whereas TCa-functions judge content- and confirmation-aspects together.

As an adequate TCb-function Batens proposes, in section 6, his K-function (P is an inductive probability function):

$$K(h,e) = \frac{P(e,h)}{P(e,h) + P(e,\bar{h})}$$

The K-values range from 0, falsification, via  $\frac{1}{2}$ , neutral confirmation, to 1, verification.

Batens does not propose a TCa-function but he formulates, in section 5, three properties which such a function must have in any case:

- a – with respect to tautological evidence, hypotheses with a higher content must receive a higher value,
- b – the same must hold for verified hypotheses,
- c – the value of a hypothesis must increase, if the relative probability of the hypothesis increases, and decrease, if the relative probability decreases.

The properties a and b can be combined and generalised in a very natural way to the following property (K is Batens' TCb-function, L is a TCa-function):

- ab. if  $K(h_1,e) = K(h_2,e)$  then,  
if  $P(h_1) \leq P(h_2)$ , then  $L(h_1,e) \leq L(h_2,e)$ .

It is easy to verify that the following definition of L has the properties ab and c, and hence a, b and c:

$$L(h,e) = \text{df } \frac{1 - P(h)}{1 + P(h)} \cdot K(h,e)$$

(L has the property c, because K has this property)

Some further properties of L are:

$$1. \quad 0 \leq L(h,e) \leq K(h,e) \leq 1$$

If t is a tautology and  $p(e, \bar{t})$  is defined as  $p(e)$ , then for all contingent e and h:

$$2. \quad 0 = L(h, \bar{h}) \leq L(h,e) \leq L(h,h) = \frac{1 - P(h)}{1 + P(h)} = 2L(h,t)$$

$$3. \quad 0 = L(t,e) = L(h, \bar{t})$$

$$4. \quad L(\bar{t}, e) = \frac{1}{2}$$

Further research needs to be directed to the question whether TCa-functions, such as L, can play a methodological role. If this question must be answered in the negative, the value of such functions is very restricted, for TCb-functions seem to be preferable for theoretical considerations.